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HOUSEHOLD FORMATION AND HOME OWNERSHIP:  
THE IMPACTS OF DEMOGRAPHICS AND TAXES

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ABSTRACT

This paper summarizes the impact of economic, social and demographic variables on household formations and home ownership in the 1960-85 period and uses this knowledge to forecast household formations, and their split between owners and renters, through the year 2000. High and low growth forecasts are reported, both with and without enactment of the Tax Reform Act of 1986. The forecasts are compared with those of others.

Net household formations are expected to be robust through 1990 (above 1½ million per year), but to tail off sharply in the 1990s (down to 1 million by 2000). Home ownership should rise slightly in the 1990s.

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## Household Formation and Home Ownership: The Impacts of Demographics and Taxes\*

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The projected change in households and its mix between owners and renters is of considerable importance to homebuilders, realtors, and residential mortgage lenders. An increase in households will increase new construction, residential sales, and the demand for mortgage credit. Moreover, the own/rent mix is a major determinant of the distribution between single and multifamily construction, sales, and mortgage demand.

Between 1962 and 1982, the baby boomers came of age. The share of the U.S. population in their twenties increased by over 50 percent, and household formations soared. This share is now decreasing dramatically. As a result, some have concluded that the bloom is off the housing rose and retrenchment is at hand (Apgar and Brown, 1982 and Sternlieb and Hughes, 1986). This view is premature. The second half of the 1980s will likely establish a new high for household growth. This growth will recede sharply in the 1990s, however, especially if the basic provisions of the Tax Reform Act of 1986 remain in place.

The maturation of the baby boomers also altered the aggregate distribution of households between owners and renters. Because households in their twenties are far more likely to rent than are older households, the aggregate ownership rate was lowered. Because the baby-boomer generation is marrying later and staying married less, and because nonmarried couple households are far more likely to rent than are married couples, the aggregate

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ownership rate was further lowered. Only an enormous general increase in age-specific ownership rates in response to sharply rising real income in the 1960s and early 1970s and plummeting real after-tax interest rates in the late 1960s and throughout the 1970s prevented a substantial decline in the aggregate homeownership rate.

The further aging of the baby-boomers will sharply increase aggregate home ownership in the next decade, although a continued shift from married couples to single and other households will act to offset this. In the absence of changes in age-specific ownership rates, the "normal" two-thirds/one-third split between owners and renters would be roughly maintained. However, the decline in owner costs and rise in rental costs expected to follow from the Tax Reform Act of 1986 should lead to a rise in the ownership rate.

This paper is divided into five sections. Section I contains a discussion of the 1960-85 data on the U.S. population and its proclivities both to form married, single and "other" households and to own and rent residences. The role of economic factors in the decisions to form households and to own or rent are examined in Sections II and III. Alternative forecasts for the numbers of owning and renting households through the year 2000 are presented in Section IV. A summary concludes the paper.

#### I. The 1960-85 Data

Table 1 lists the population shares for the nine age cohorts in 1960, 1970, 1980 and five-year intervals through 2000 (the data after 1985 being Census projections). The major changes in these shares reflect the shifting of the post-World War II baby boomers through the population. Between 1960 and 1970 the 10-24 age group expanded; between 1970 and 1980 it was the 20-34 group. The big gainer between 1980 and 1990 will be the 30-44 group, and the 40-54 cohort will be expanding in the 1990s. The population age distribution

affects the numbers of owning and renting households importantly because both the headship rate (the proportion of the population that constitutes household heads) and the ownership rate (the proportion of households that own) increase sharply between the late teens and early forties (see Tables 2 and 3).

The data in Table 2 reveal that age-specific headship rates have varied significantly over time. Between 1962 and 1978, all age-specific rates rose; the larger increases were for the population aged 20-44 (0.05) and, especially, over age 75 (0.10). Since 1978, headship rates have generally declined, sharply for the population in their twenties, although rates increased slightly for the 35-54 cohort. The causes of these changes will be discussed in detail later in the paper, but one fact stands out in Table 2: the generally higher headship rates of those born after 1937 (who were age 24 and younger in 1961). Note how the movement of those born between 1938 and 1942 into the 25-29 age group in the 1962-67 period sharply raised that headship rate, while in 1967-72 they raised the 30-34 headship rate. Later, in 1972-82, they continually pushed the 35-44 headship rate upward and since then have been raising the 45-54 headship rate (this phenomenon explains why the headship rate for only the 35-54 cohort rose between 1978 and 1985). People born after 1942 maintained the greater demand for headship established by those born between 1938 and 1942 (note that the 20-24 rate did not fall in 1962-67, the 25-29 rate did not fall in 1967-72, and the 30-34 rate did not fall in 1972-77).

The data in Tables 3 and 4 also indicate significant variation in home ownership rates over time. The Census Bureau data (Table 3) show a sharp increase in ownership rates for married couples and primary individual households (ones where no relatives reside with the household head) of all ages between 1960 and 1980. For marrieds under 65, the increases are 12 to 14 percentage points; for primary individuals under 45, the increases are 9 to 13 percentage points. In contrast, "other" female families (families where no

spouse of the female head is present) had roughly constant ownership rates while other male households decreased their ownership. The Annual Housing and Housing Vacancy Survey data in (Table 4) show that this trend was reversed in the first half of the 1980s for married households under age 45, but continued for married couples over age 64. For singles and others under 35, a slight decrease occurred; for those over 34, ownership continued to rise.

In what follows, I calculate the impact of changes in population age shares on the aggregate headship and ownership rates of the U.S. during the 1960-85 period and then use the same methodology to compute the impact of "known" changes in age shares during the 1986-2000 period on the aggregate headship and ownership rates through 2000. I also calculate the impact of changes in household-composition shares (fewer marrieds, more singles and others) on the aggregate ownership rate in the 1960-85 period. The impact of changes in age-specific headship and ownership rates, the endogenous determinants of headship and ownership, are discussed in subsequent sections.

#### A. Demographic Changes and Aggregate Headship

Identifying the impact of pure demographic shifts on the aggregate headship rate is fairly straightforward. The aggregate headship rate (total households, HH, divided by total population, POP) is simply the sum of the products of the age-specific headship rates ( $h_i$ ) and population shares ( $p_i$ ). At time  $t$ , then,

$$\left(\frac{HH}{POP}\right)_t = hh_t = \sum_i h_{it} p_{it}. \quad (1)$$

To isolate the impact of changing population age-shares, this headship rate can be recomputed holding the age-specific headship rates constant at, say,  $h_{i*}$ :

$$hh_{*t} = \sum_i h_i * p_{it}. \quad (2)$$

The difference between  $hh_t$  and  $hh_{*t}$  is this impact.

The aggregate headship rate ( $hh_t$ ) and the rate based on changing age-shares only ( $hh_{*t}$ ) are listed in Table 5 for 1960, 1970, 1980 and 1985. The aggregate rate rose from 0.295 in 1960 to 0.371 in 1985, a 25 percent increase. About half of the increase was due to the maturing of the baby boomers (changing age shares) and half to increases in age-specific headship rates. The lower part of the Table indicates the changes in the headship rate due to these two factors. (The age-share contributions through the year 2000 are obtained by using the population shares in Table 1 and the 1985 age-specific headship rates.) As can be seen, demographic forces have been particularly strong since 1970 and will continue to raise headship through 2000. Higher age-specific headship rates substantially raised aggregate headship throughout the 1960s and 1970s, while lower rates decreased headship somewhat in the 1980s. How these rates will change in future years is, of course, problematic.

#### B. Demographic Changes, Household Composition and Aggregate Ownership

The proportion of total households that are homeowners of household type  $x$  is the sum across age cohorts of the products of the age and household-type specific ownership rate ( $o_i^x$ ), the fraction of households of this type ( $x_i$ ), the headship rate ( $h_i$ ), and the population share ( $p_i$ ):

$$\left(\frac{OH^x}{HH}\right)_t = o_t^x = \frac{\sum_i o_{it}^x x_{it} h_{it} p_{it}}{hh_t}, \quad (3)$$

where x represents, in turn, married couples, singles, other male households and other female households. The aggregate ownership rate is simply the sum of the household-type ownership rates

$$\left(\frac{OH}{HH}\right)_t = o_t = \sum_x o_t^x. \quad (3')$$

To isolate the impact of changing population age-shares, one would recalculate the  $o_t^x$  holding the age-specific ownership and headship rates and the household-composition shares constant

$$o_{*t}^x = \frac{\sum_i o_{i*}^x \cdot h_{i*} \cdot p_{it}}{hh_{*t}} \quad (4)$$

and recompute the aggregate rate as

$$o_{**t} = \sum_x o_{*t}^x, \quad (4')$$

the difference between  $o_{*t}$  and  $o_t$  being the impact. On the other hand, the joint impact of changing age and household-composition shares can be isolated by holding only the age-specific ownership and headship rates constant

$$o_{***t}^x = \frac{\sum_i o_{i*}^x \cdot h_{i*} \cdot p_{it}}{hh_{*t}} \quad (5)$$

and computing



$$o_{**t} = \sum_x o_{*t}^x \quad (5')$$

the difference between  $o_{**t}$  and  $o_{*t}$  being the impact.

The household-composition shares for 1960, 1970, 1980 and 1985 are listed in Table 6. A sharp shift has occurred, especially since 1970, in the composition of households under age 45. The share of married couples in total households has fallen by 14 percentage points for the 35-44 age cohort, 20 percentage points for the 30-34 age cohort, 24 percentage points for the 25-29 group, and 30 percentage points for households under age 25. For the youngest cohort, the shift has been to "other" male and female households; for the 25-44 cohorts, both primary individuals and other have gained at the expense of married couples. Obvious causes of these shifts include higher divorce rates and postponement of marriage. Changes in owner and renter costs also affect shares because the different type households have different ownership rates. These shifts and the likelihood of their continuance will be discussed below.

The aggregate ownership rate rose from 0.623 in 1960 to 0.656 in 1980, an increase of only 5 percent. Table 7 illustrates how this small rise disguised the major shift toward ownership by married-couple and primary-individual households. Both the movement of the baby-boomers from nonhouseholds to young rental households and the shift from married households to primary individual and other households (that are more likely to rent) tended to lower the ownership rate throughout the 1960s and 1970s. In fact, the aging of the baby boomers and the relative decline in married households would have lowered the aggregate ownership rate by  $4\frac{1}{2}$  percentage points between 1960 and 1980 in the absence of an increase in age-specific ownership rates.<sup>1</sup> The surge to ownership -- the increase in the age-specific ownership rates -- alone acted to raise the aggregate ownership rate by  $7\frac{1}{2}$  percentage points.

These events have been partially reversed in the early 1980s. The aging of the baby boomers has started to increase the aggregate ownership rate, and age-specific ownership rates have declined for households under about age 40. Still, the observed 1.7 percentage point decline in the aggregate ownership rate is largely a result of the continuing shift from married-couple households to primary individuals and others. The recent decline in age-specific ownership rates has lowered the aggregate ownership rate by less than a percentage point.

The data in Table 7 also reveal a significant demographic-driven increase in ownership through at least the year 2000. Of course, continuation of the shift in household composition away from married couples would act to offset this. How age-specific ownership rates will change is, like the changes in age-specific headship rates, problematic. To make intelligent assumptions about these rates requires an understanding of the household formation and tenure decisions.

## II. The Household Formation Decision

The determination of age-specific headship rates has not been an area of intense research. The most promising work views household formations as the reflection of a demand for privacy; the greater the demand, the higher will be age-specific headship rates. Like any demand, it will depend positively on real income and negatively on the price or cost of obtaining the good (privacy).

Between 1960 and 1980, real income per capita in the United States increased by two-thirds. Moreover, the sharp increase in real transfer payments (food stamps, AFDC payments and social security benefits) meant that the incomes of those least able to afford privacy rose even more sharply

percentage wise. Not surprisingly, headship rates of those most dependent on transfer payments -- those under 30 and over 75 -- also increased most dramatically.

Two price-of-privacy measures seem relevant. The first is the price of obtaining housing services, both owner-occupied and rental. According to many (e.g., Diamond, 1980 and Hendershott and Hu, 1981), the annual rental cost of owner-occupied housing was roughly halved between 1960 and 1979 (the cost of rental housing varied little). In contrast, the cost of owner housing nearly tripled, in the early 1980s, while the cost of rental housing rose by only 10 percent.

A second price variable, relevant to only a subset of potential households, is the level of AFDC payments. By establishing a separate household, a qualified adult can receive benefits; the higher are the benefits, the lower is the cost of obtaining privacy (Ellwood and Bane, 1984). Real AFDC payments per recipient increased by a third (and qualification standards were relaxed) between the early 1960s and late 1970s, lowering the cost of privacy for some potential households. The reverse occurred in the first half of the 1980s: real AFDC payments fell by over 10 percent (and eligibility standards were tightened).

Hendershott and Smith (1985, 1987) have related household formations in the 1960-84 period to both the changing age structure of the population and changes in the real-income and cost-of-privacy variables just discussed.<sup>2</sup> Table 8 attributes both the 27 million increase in households in the 1961-79 period and the 9½ million increase in the 1980-85 span to various causes. As can be seen, much of the increases -- two-thirds for the first period and over one hundred percent for the second -- is purely demographic -- more people alive in older age-cohorts. Demographics are far from the entire story,

however. Rising age-specific headship rates produced 8 million extra households in the first period, and declining rates have tended to reduce household formations by  $1\frac{1}{2}$  million since 1979.

Forecasting age-specific headship rates requires forecasting real income growth, changes in the transfer programs, and the real cost of housing services. Major changes in the transfer programs seem unlikely, but real income should rise gradually, as it has in the past, raising headship rates slightly. How the real cost of housing services will vary is probably the most uncertain factor. If real after-tax interest rates remain high, then a slight decline in headship rates for households above age 30 is likely as they increasingly face the full cost of the high real interest rates of 1981-85. On the other hand, if after-tax real rates decline, the potential younger households not formed due to high rates -- children living with parents and unrelated individuals living together -- will likely be formed. The Tax Reform Act of 1986 is especially relevant here because it is likely to change relative housing costs. More will be said on this when forecasts are presented.

### III. The Ownership Decision

A number of studies (e.g., Rosen and Rosen, 1980 and Hendershott and Shilling, 1982) have successfully related the aggregate ownership rate to both demographic factors and the cost of owning relative to the cost of renting. Because these studies covered only the 1960s and 1970s, a near monotonic increase in the adjusted (for demographic shifts) home ownership rate was correlated with a distributed lag on a nearly monotonically declining cost of owning relative to renting. (The rationalizations for the lag structures were not particularly compelling.) One could argue that the distributed lag may have reflected little more than a continual shift in tastes toward ownership.

Haurin, Hendershott and Ling (1987) have recently studied Annual Housing Survey data for younger married households during the 1973-83 period.

Households under-age-25, 25-29, 30-34 and 35-44 were analyzed separately. For each of the ten years, households in 5 to 7 of the income ranges published in the AHS were considered, and the tax rate employed in calculating the cost of owner housing was carefully computed (Hendershott and Slemrod, 1983). In total, roughly 66 observations (10 years and various income levels) were explained for each of the 25-29, 30-34 and 35-44 age classes; for the under-age-25 class, 60 observations were explained.

Their results suggest substantial sensitivity to income and price changes. To illustrate, a fifty percent increase in real income and a one-quarter decrease in the owner-renter price ratio, roughly the changes from the middle 1960s to the late 1970s, would have increased the ownership rates for the four age classes by 12 to 16 percentage points, just over half of which is due to the income variable. In contrast, increasing the price ratio by fifty percent (the early 1980s) would lower the ownership rates by 3 or 4 percentage points. These simulated changes are quite consistent with the observed changes (see Tables 3 and 4).

Tables 9 and 10 are analogous to Table 8 in that they attribute the increases in households (in this case owners and renters, respectively) during the 1961-79 and 1980-85 periods to various factors. A major factor is, of course, the increase in households itself; the results of Table 8 are incorporated in Tables 9 and 10 (whatever gave rise to an increase in households must have increased owners, renters or both). The changes due to population shifts, growth in income, and social security benefits are distributed two-thirds to owners and one-third to renters, reflecting the near two-thirds aggregate ownership rate throughout the period. The changes due to

the cost of housing are distributed to owners and renters according to the impacts of changes in owner and rental costs. The changes due to the AFDC/food-stamp variable are assumed to affect renters only.

Tables 9 and 10 also reflect the impact of changes in the composition of households and in the ratio of owner to renter costs. For a given household total, these factors simply shift households between tenure modes. Thus the ownership/rental mix entries in the two tables are always equal in absolute magnitude and opposite in sign. These entries are based on the calculations in Table 7.

The tables highlight how the "exogenous" structural factors and the "endogenous" housing costs and other variables have reversed themselves in the 1980s. Population growth and changing age structure and household composition have increased owner households by a million more than rental households so far in the 1980s; the reverse was true in the previous two decades. Moreover, changes in housing costs and the growth in income and transfer payments in the 1960s and 1970s increased owner households by 10 million and decreased renter households by 2 million. So far in the 1980s, such changes have reduced both owner and renter households slightly.

The major determinant of age-specific ownership rates during the rest of the century is likely to be the cost of owning relative to the cost of renting. As noted below, the Tax Reform Act of 1986 is expected to have a significant impact on these costs.

#### IV. Forecasts

The top section of Table 11 contains the actual average annual changes in homeowners, renters and the total number of households during the 1960s, the 1970s and the first half of the 1980s. Below the actual changes is a simple extrapolation, for five-year intervals through 2000, in which age-specific

headship and ownership rates and the composition of households are held constant at their 1985 values, i.e., the forecast is driven solely by population growth and the age-specific population shares. (The second number for the owner/renter split will be discussed momentarily.)

Household growth has exceeded  $1\frac{1}{2}$  million per year on average over the past 15 years owing to positive demographic forces (baby boomers forming households) and economic factors (expansion of transfer programs). The demographics remain very positive for the rest of the 1980s. By the 1990s through, a weakening of the demographic forces will reduce household growth to about a million a year, near the pace of the 1960s.

The continued movement of the baby-boomers into higher ownership age-cohorts and the appearance of the "baby-bust" in the prime renting years (in the 1990s the 20-29 age cohort will decrease by 7 million) will act to tilt the distribution of household growth in favor of owners and against renters. In fact, the 900 thousand annual increase in owning households extrapolated for the 1990s is about as large as the average annual increase during the first half of the 1980s. The increase in renters, though, is extrapolated to be lower than any time since the 1950s. The extrapolated renter's share of increased households is only 13 percent, far below any share on record.

A major factor operating against ownership, however, is the almost certain shift from married couples to single and other households. As was noted earlier, enormous shifts have already occurred for households under 45 and the shifts have been greater the younger the households. It seems clear that younger people generally have far different tastes for the married-couple state than their parents did and thus will be significantly less likely to be choosing the married state 15 years from now than their parents did at a comparable age.

Table 12 contains projections of household composition shares. No further decline in the married-couple share of the under-25 cohort is projected, but a "catch-up" of older cohorts is. When a continued shift of this nature is built into the extrapolation (the second numbers listed under owners and renters in Table 11), the results are not much different from the 1960s and 1970s: roughly 70 percent of household growth is in owner form and 30 percent is in renter.

A. Assumptions for Age-Specific Headship and Ownership Rates

Four alternative scenarios are analyzed below. The first two incorporate a continuation of the high real interest rate world of 1985. They differ in that one assumes faster real economic growth than the other. Table 13 contains both the known age-specific headship rates for 1985 and the values employed in the "continuation" 1990-2000 forecasts. With slow economic growth and a continuation of the 1985 environment, age-specific headship rates generally should not rise as they have in earlier decades because the lagged impact of high real interest rates offsets the effect of growing real income. The exception is in the 20-34 age brackets, where high real rates have already taken their full toll, and thus future income growth will raise headship rates from the current depressed levels. With more rapid growth, headship rates will rise. Headship rates are raised by 0.005 for each half decade for all except the youngest and oldest age cohorts.<sup>3</sup> Only 0.001 increases are incorporated for those cohorts.

The other two forecast scenarios reflect the impact of the Tax Reform Act of 1986. In our estimation (Follain, Hendershott and Ling, 1987), the Act will raise real rents by roughly 10 percent in a long-run equilibrium, but lower the price of owner housing for most households (by about 4 percent for those with under \$50,000 in adjusted gross income). Because the elasticity of headship



with respect to renter costs is eight times as great as with respect to owner costs (Hendershott and Smith, 1987), 0.056 versus 0.007, household formations will be lower than otherwise. To account for this, the headship rates of those age 20-44 are reduced relative to the continuation forecasts by 0.002 in 1990, 0.004 in 1995 and 0.006 in 2000.<sup>4</sup>

The age-specific ownership rate assumptions for married and single households are listed in Table 14. With continuation of the 1985 environment, ownership rates for married couples under age 35 remain at their already depressed 1985 levels. For older couples, the impact of high real interest rates has probably not yet been fully observed. Their ownership rates are assumed to decline by 1.5 additional percentage points by the year 2000. For single households under 35, the current low rates are presumed to continue; for singles above age 34, a 0.9 percentage point decline from current levels is projected.

The Tax Reform Act of 1986 would increase ownership rates because the cost of owning falls and the cost of renting rises. Our calculations suggest about a two percentage point increase from the old equilibrium to the new for married couples under 35. For older married couples, the ownership rate is raised by 1.5 percentage points, exactly offsetting the lagged responses to the sharp rise in real rates in the early 1980s. For singles under 35, the rates are raised by a percentage point and a half. The forecasted changes occur gradually. For older singles and all others, their ownership rates are held at their 1985 values because these rates do not show any clear relationship to housing costs.

## B. Behavioral Forecasts

The behavioral forecasts are reported in Table 15. The upper half of the table contains household formations, including the extrapolation from Table 11, and the lower half lists the proportion of the net increase in households that constitutes owners. The high economic growth scenario has 200,000 more net formations per year than the low growth scenario; the Tax Reform Act lowers net formations by about 40,000 per year in either growth scenario. With Tax Reform, the two growth forecasts for the second half of the 1980s bracket actual net formations in the first half of the 1980s. By the 1990s, the Tax-Reform forecasts are near actual formations in the 1960s (higher in the first half of the 1990s with rapid growth and lower in the second half with slow growth).

With a continuation of the 1985 environment, only 57 percent of the household increase in the rest of the 1980s would be an increase in owners. This is less than the first half which itself was the lowest percentage since at least 1950. While the percentage of the total increase going to owner housing would rise into the low 60s in the 1990s, the increase in owning households would be below that of the 1960s. In contrast, the increase in renting households would be above that of the 1960s, although below that of the 1970s.

Enactment of the Tax Reform Act of 1986 alters the pattern of the forecast. About two-thirds of the increase in households in the rest of the 1980s would be owners, and the combination of this percentage and the large increase in total households would generate a greater increase in owners in the second half of the eighties than in the first half. For the 1990s, over 70 percent of the increase in households would be owners, and by the second half

of the 1990s, the aggregate ownership rate be within a percentage point of the 1980 peak of 65½ percent. The increase in renters in the 1990s would be under 300,000 per year or less than the 1960s.

### C. Comparisons with Other Forecasts

Table 16 compares the above forecasts with those of Abraham, Brown and Gillmore (1986) and Sternlieb and Hughes (1986). We emphasize our continuation forecasts in the comparison because the other forecastors did not incorporate an impact of the Tax Reform Act. The Sternlieb-Hughes forecasts for both the second half of the 1980s and the first half of the 1990s are 10 to 30 percent below our forecasts. The AB&G forecasts are even further below ours for the rest of the 1980s, but are at or above our high forecast for the entire decade of the 1990s. Only Sternlieb and Hughes present a breakdown between owners and renters. The percent of the increase in households that is an increase in owners is 15 to 20 percentage points above our continuation forecasts.

The differences in the forecasts can, of course, be traced to the differences in assumptions. Sternlieb and Hughes present a pure extrapolation; age-specific headship and ownership rates and household composition shares are all assumed to be constant between 1983 and 1995. As a result, their owner/renter split and net increase in households is virtually identical to our pure-extrapolation case. AB&G have endogenous age-specific headship rates, and differences in these and our assumed rates account for the differences in forecasts. During the second half of the eighties, AB&G have falling headship rates for the under-35 cohorts and flat rates for the 35-54 cohort. Thus their net-formations forecast is below ours. In the 1990s, though, they envision rapidly increasing age-specific headship rates; thus their forecast is at or above our higher forecast.

## V. Summary

During the 1960s and 1970s, household demands for privacy (headship) and ownership increased significantly. The headship increase was especially dramatic for the young (under 30) and old (over 75); much of the increase should probably be attributed to the sharp increases in transfer programs aimed at these groups (AFDC, food stamps, and social security), although some was due to rising income and declining housing costs. Increased headship raised total households by 8 million.

The ownership rates for married couples under 65 and primary individual households under 45 increased by ten percentage points during the 1960s and 1970s. These increases, alone, acted to raise the aggregate ownership rate by  $7\frac{1}{2}$  percentage points. These increases stemmed from a substantial increase in real income per household and a notable decline in the cost of owning relative to the cost of renting.

Increases in real interest rates in the early 1980s reduced both headship and ownership rates of those under age 40; for married couples, the decline in ownership rates was 5 percentage points.

The postponement of marriage and the increase in divorce rates during this period sharply reduced the share of married couples in total households, by a full 30 percentage points for households under 35 and by 20 percentage points for those age 35 to 44. Because ownership rates are much greater for married couples than for single or "other" households, the aggregate ownership rate tended to decline by  $2\frac{3}{4}$  percentage points.

Changes in the age distribution of the population, particularly the maturing of the baby boomers, also had an enormous impact on household formation and ownership in the last quarter century. Changing age shares increased household formations by 10 million between 1970 and 1985 and acted to

lower the aggregate ownership rate by nearly 2 percentage points during the 1960s and 1970s. The latter resulted from the gradual shift over time of baby-boomers from teenagers to adults in their prime renting years.

The impact of the changing age distribution on headship and ownership through the year 2000 is known (in the absence of unforeseen changes in death rates and immigration). Because age-specific headship and ownership rates both rise sharply between ages 20 and 40, the aging of the baby-boomers will raise both headship and ownership, although the impact on headship will weaken in the 1990s. A further shift from married couples to singles and others will tend to offset the demographic impact on aggregate ownership.

Future net household formations will depend on the rate of economic growth and passage of the Tax Reform Act of 1986. High growth will generate 200,000 more formations per year than low growth, while the Tax Act should lower formations by about 40,000 a year (owing to the anticipated increase in rents). Formations in the second half of the 1980s will be roughly equal to those in the first half. For the 1990s, the negative demographics (a 7 million population decline in the 20-29 age cohort) should reduce formations to 1.0 to 1.2 million per year, roughly the formation rate for the 1960s.

The Tax Reform Act will lower the cost of owning for most households and increase the cost of renting for everyone. Because households are sensitive to the ratio of owner to renter costs, the Tax Act will have an impact on the split between owning and renting. In the absence of the Tax Act, the increase in owners in the second half of the 1980s would be only 57 percent of the total increase in households; in the 1990s, this ratio would rise to 64 percent. With the Tax Reform Act, these percentages rise to 65 and 75 percent, respectively.

Footnotes

<sup>1</sup> It is possible that the shift in household composition caused the increase in ownership rates for married couples. This would be the case if the shifting households were predominantly lower-income renting households. Examination of the Annual Housing Survey Data for owners and renters, stratified by age and income, for 1973 and 1979 suggests that this was not the case. Ownership rates jumped at all income levels.

<sup>2</sup> Divorce variables tested in a change-in-household equation in the earlier paper included: the total number of divorces each year, the change in the total number (stock) of divorced persons, the latter but restricted to population over age 34, and the change in the number of households head by divorced women with children under 18. None of the variables had a noticeable, much less statistically significant, impact on household formations. This is not all that surprising because a divorce could lead to the loss of a household, no change in households, or the gain of a household depending on whether the divorced parties joined existing households or established their own.

<sup>3</sup> With more rapid growth being  $1\frac{1}{4}\%$  more per year, income is 20 percent higher by the year 2000. With an income elasticity of 0.09, households increase by 1.8 percent. Spreading this increase over the 65% of the population between 20 and 65, which has a headship rate of 0.55, gives a total increase of  $0.018(.55)/.65 = 0.015$ .

<sup>4</sup> With a 10 percent increase in renter costs over the 15 year period, total households should decline by 0.56 percent (10 times 0.056) or about half a million. With 97 million people in the 20-44 age class, their headship must decline by 0.006.

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Table 1: Population Shares by Age Cohort, 1960-2000

Age	1960	1970	1980	1985	1990	1995	2000
0-14	.325	.293	.229	.221	.219	.219	.209
15-19	.072	.093	.093	.078	.068	.065	.071
20-24	.059	.077	.092	.087	.074	.066	.064
25-29	.060	.067	.084	.090	.086	.072	.065
30-34	.066	.056	.077	.084	.088	.084	.071
35-44	.133	.114	.116	.134	.152	.162	.163
45-54	.115	.115	.104	.096	.102	.121	.138
55-64	.086	.091	.096	.095	.084	.081	.089
65-74	.056	.059	.069	.071	.072	.071	.066
75+	<u>.028</u>	<u>.035</u>	<u>.040</u>	<u>.044</u>	<u>.055</u>	<u>.059</u>	<u>.064</u>
Total	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total Population (billions)	180.7	205.1	227.7	238.8	249.7	259.7	268.0

Table 2: Headship Rates by Age Cohort, 1962-85

Age	1962	1967	1972	1978	1985
15-19	.020	.018	.024	.026	.023
20-24	.240	.242	.274	.290	.245
25-29	.411	.456	.463	.488	.457
30-34	.477	.476	.507	.531	.525
35-44	.491	.504	.510	.544	.559
45-54	.523	.532	.546	.546	.564
55-64	.573	.572	.591	.594	.590
65-74	.632	.639	.656	.658	.655
75+	.589	.628	.690	.712	.713
Total	.301	.304	.326	.355	.371
Total Households (billions)	53.5				88.6

Table 3: Ownership Rates, 1960-80  
(Census Data)

	<u>Married Couples</u>			<u>Primary Individuals</u>			<u>Other Householders</u>					
	1960	1970	1980	1960	1970	1980	<u>Male</u>			<u>Female</u>		
	1960	1970	1980	1960	1970	1980	1960	1970	1980	1960	1970	1980
Under 25	.229	.260	.368	.067	.067	.115	.50	.317	.126	.25	.154	.062
25-29	.440	.488	.584	.111	.111	.202	.55	.436	.288	.27	.220	.171
30-34	.620	.660	.752	.173	.173	.305	.66	.527	.404	.30	.318	.344
35-44	.727	.771	.841	.259	.259	.369	.68	.613	.556	.44	.439	.449
45-64	.752	.811	.880	.440	.466	.510	.70	.679	.667	.58	.599	.639
Over 64	.779	.788	.840	.444	.555	.589	.73	.744	.736	.73	.711	.712

Source: 1960, 1970 and 1980 Census of Housing, supplemented by 1980 Housing Vacancy Survey. 1960 data, except for married couples, estimated by the author.

Table 4: Ownership Rates, 1975-85

<u>Age</u>	<u>Married Households</u>			<u>Single Households</u>			<u>Other Male</u>			<u>Other Female</u>		
	1975	1980	1985	1975	1980	1985	1975	1980	1985	1975	1980	1985
Under 25	.311	.349	.301	.066	.115	.107	.098	.126	.120	.043	.062	.066
25-29	.545	.582	.526	.128	.202	.187	.184	.288	.271	.197	.171	.160
30-34	.724	.747	.684	.230	.305	.291	.412	.404	.390	.306	.344	.297
35-44	.807	.833	.802	.284	.369	.392	.558	.556	.552	.431	.449	.453
45-64	.856	.878	.873	.483	.516	.536	.674	.667	.674	.664	.639	.641
65+	.827	.851	.874	.563	.592	.613	.751	.736	.758	.711	.712	.765

Source: Annual Housing Survey and Housing Vacancy Survey (data kindly supplied by David Crowe of HUD).

Table 5: Demographic Factors and the Aggregate Headship Rate, 1960-2000

	<u>Headship Rate</u>	
	<u>Due to All Factors</u>	<u>Due to Changes in Age-Shares</u>
1960	.295	.295
1970	.314	.297
1980	.363	.324
1985	.371	.336

	<u>Change Due to</u>	
	<u>Age Shares</u>	<u>Age Specific Headship Rates</u>
1961-70	.002	.017
1971-80	.027	.022
1981-85	.012	-.004
1986-90	.013	
1991-95	.006	
1996-2000	.005	

Table 6: Household Types as Fractions of Total Households

	Under 25	25-29	30-34	35-44	45-64	Over 64
Married Couples						
1960	.73	.875	.89	.86	.737	.507
1970	.664	.778	.803	.796	.716	.463
1980	.452	.603	.671	.726	.697	.455
1985	.364	.537	.605	.653	.656	.450
Singles						
1960	.19	.065	.03	.05	.165	.385
1970	.233	.123	.083	.080	.171	.426
1980	.246	.197	.157	.105	.174	.438
1985	.256	.212	.175	.137	.188	.439
Other Female Householders						
1960	.06	.04	.06	.065	.07	.08
1970	.082	.081	.092	.098	.084	.082
1980	.175	.125	.124	.132	.096	.081
1985	.228	.153	.152	.154	.113	.085
Other Male Householders						
1960	.02	.02	.02	.025	.028	.028
1970	.021	.018	.022	.026	.029	.029
1980	.127	.075	.048	.037	.033	.026
1985	.152	.098	.068	.056	.043	.026

Source: 1960, 1970 and 1980 Census of Housing, supplemented by 1980 Housing Vacancy Survey. 1960 data, except for married couples, estimated by the author.

Table 7: Demographic Factors and the Aggregate Ownership Rate, 1960-2000

	Ownership Rate		
	Due to All Factors	Due to Changes in Age-Shares	Due to Changes in in Age Shares and Household-Composition
1960	.623	.623	.623
1970	.635	.615	.600
1980	.655	.606	.579
1985	.638	.607	.570

  

	Changes Due to		
	Age Shares	Household Composition	Age-Specific Ownership Rates
1961-70	-.008	-.015	.035
1971-80	-.009	-.012	.041
1981-85	.001	-.010	-.008
1986-90	.008		
1991-95	.012		
1996-2000	.009		

Table 8: Increase in Households, 1961-85  
(millions)

	1961-79	1980-85
Due to Population Growth and Age Structure Changes	19	9½
Due to Changes in Headship Rates	8	-1½
Real Income	2 ¾	¼
Real Cost of Housing	½	-¾
AFDC/Food Stamps	¾	-1½
Social Security	1½	¼
Total Increase	<u>27</u>	<u>8</u>

Source: Hendershott and Smith, 1987.



Table 9: Increase in Owners, 1961-85  
(millions)

	1961-79	1980-85
Due to Population Growth and Changing Age-Structure and Household-Composition	9	5½
Household Formations	12 ¾	6¼
Ownership/Rental Mix	-3 ¾	-¾
Due to Changes in Real Income and Social Security Benefits		
Household Formations	2 ¾	¼
Due to Change in Real Costs of Owner and Rental Housing	7¼	-1¼
Household Formations	¼	-½
Ownership/Rental Mix	7	-¾
Due to Changes in AFDC/Food Stamp	-	-
<b>Total</b>	<b>19</b>	<b>4½</b>

Table 10: Increase in Renters, 1961-85  
(millions)

	1961-79	1980-85
Due to Population Growth and Changing Age-Structure and Household Composition	10	4
Household Formations	6½	3½
Ownership/Rental Mix	3 3/4	3/4
Due to Changes in Real Income and Social Security Benefits		
Household Formations	1½	½
Due to Changes in Real Costs of Owner and Rental Housing	-6 3/4	½
Household Formations	½	-½
Ownership/Rental Mix	-7	3/4
Due to Changes in AFDC/Food Stamps	<u>3½</u>	<u>-1½</u>
Total	8	3½

Table 11: Actual and Extrapolated Household Growth  
(millions per year)

	Households	Owner	Renter
1961-70	1.10	0.74	0.33
1971-80	1.61	1.18	0.43
1981-85	1.52	0.90	0.62
1986-90	1.46	1.08/0.95	0.38/0.51
1991-95	1.08	0.94/0.79	0.14/0.29
1996-2000	0.93	0.81/0.65	0.12/0.28

Table 12: Household Composition Shares Used in Behavioral Forecasts

	<u>Under 25</u>	<u>25-29</u>	<u>30-34</u>	<u>35-44</u>	<u>45-64</u>	<u>Over 64</u>
Married Couples						
1985	.364	.537	.605	.653	.656	.45
1990	.364	.518	.57	.622	.628	.445
1995	.364	.499	.535	.591	.599	.44
2000	.364	.48	.50	.560	.57	.435
Singles						
1985	.256	.212	.175	.137	.188	.439
1990	.256	.219	.187	.148	.197	.442
1995	.256	.226	.199	.159	.207	.445
2000	.256	.233	.211	.170	.217	.448
Other Female Householders						
1985	.228	.153	.152	.154	.113	.085
1990	.228	.159	.164	.164	.125	.087
1995	.228	.165	.176	.174	.137	.089
2000	.228	.171	.188	.184	.149	.091
Other Male Householders						
1985	.152	.098	.068	.056	.043	.026
1990	.152	.104	.079	.066	.050	.026
1995	.152	.110	.090	.076	.057	.026
2000	.152	.116	.101	.086	.064	.026

Table 13: Age-Specific Headship Rates Used in Continuation-of-1985 Forecasts

Age	1985	Low Growth			High Growth		
		1990	1995	2000	1990	1995	2000
15-19	.023		.023		.024	.025	.026
20-24	.245	.255	.265	.275	.260	.275	.290
25-29	.457	.462	.467	.472	.467	.477	.487
30-34	.525	.527	.529	.531	.532	.539	.546
35-44	.559		.559		.564	.569	.574
45-54	.564		.564		.569	.574	.579
55-64	.590		.590		.595	.600	.605
65-74	.655		.655		.660	.665	.670
75+	.713		.713		.714	.715	.716

Table 14: Age-Specific Ownership Rates Used in Behavioral Forecasts

Age	Married Couples					Singles						
	<u>Continuation of 1985</u> 1985	1990	1995	2000	<u>Tax Reform Act of 1986</u> 1990	1995	2000	<u>Continuation</u> 1985	1990+	<u>Tax Reform Act of 1986</u> 1990	1995	2000
Under 25	.301	.301	.301	.301	.311	.321	.321	.107	.107	.112	.117	.122
25-29	.526	.526	.526	.526	.536	.546	.546	.187	.187	.192	.197	.202
30-34	.684	.684	.684	.684	.694	.704	.704	.291	.291	.296	.301	.306
35-44	.802	.797	.792	.787	.802	.802	.802	.392	.377	.392	.392	.392
45-64	.873	.868	.863	.858	.873	.873	.873	.536	.521	.536	.536	.536
Over 64	.874	.869	.864	.859	.874	.874	.874	.613	.598	.613	.613	.613

Table 15: Behavioral Forecasts

Household Formations (million per year)					
	Extrapolation	1985-Continuation		Tax Reform Act	
		Low Growth	High Growth	Low Growth	High Growth
1986-90	1.46	1.51	1.69	1.47	1.65
1991-95	1.08	1.15	1.34	1.11	1.30
1996-2000	0.93	0.98	1.17	0.94	1.14

Ownership Share of Increase Growth						
	Extrapolation		1985-Continuation		Tax Reform Act	
	Pure	Modified	Low Growth	High Growth	Low Growth	High Growth
1986-90	.74	.65	.57	.57	.66	.65
1991-95	.87	.73	.66	.65	.74	.72
1996-2000	.87	.70	.62	.62	.69	.67

Table 16: A Comparison of Forecasts

Period	Annual Net Household Formations				Percentage That is Owner	
	Sternlieb & Hughes	Abraham, Brown & Gillmore	Hendershott Continuation	Tax Reform	Sternlieb & Hughes	Hendershott Continuation
1986-90	1.3	1.2	1.5 to 1.7	1.5 to 1.65	72	57
1991-95	1.05	1.35	1.15 to 1.35	1.1 to 1.3	84	66
1995-2000		1.25	1.0 to 1.2	0.95 to 1.15		62
						68